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NIMA/DOD

NPIC/TDS/D-715-67  
28 February 1967

MEMORANDUM FOR: Director, National Photographic Interpretation Center

THROUGH : Chief, Support Staff

SUBJECT : Request for Approval of the Tilted Eyepieces for the  
Zoom 70 Microstereoscope Project with [REDACTED]  
[REDACTED] from FY-1967 Funding

REFERENCE : Chief, Administrative Staff, O/DDI Memorandum of  
4 February 1964 on: "Approval of R&D Activities."

1. The Tilted Eyepieces for the Zoom 70 Microstereoscope Staff Study has been prepared for your approval in order for contract negotiations to be carried out in FY-1967. This project calls for the development of a pair of eyepieces to fit the Zoom 70 which would bend the optical path close to the horizontal. It is a four month effort to produce a production prototype model which, upon acceptance, would be followed by production orders from the NPIC operational units.

2. The attached staff study, tab, and contract proposal present pertinent information and justification for this project.

3. It is recommended that this project ~~be approved at a funding level~~  
[REDACTED] in FY-1967.

[REDACTED]  
Colonel, USAF  
Assistant for Technical Development, NPIC

Attachments: a/s

APPROV

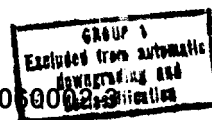
ARTHUR C. LUNDAHL  
Director

National Photographic Interpretation Center

5 MAR 1967

Date

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SUBJECT: Request for Approval of the Tilted Eyepieces for the Zoom  
70 Microstereoscope Project with [REDACTED]  
[REDACTED] from FY-1967 Funding

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Distribution:

- Orig & 1 - Addressee (To LB/SS/NPIC after approval)  
1 - Ch/SS  
1 - O/A/TD  
3 - TDS/DS  
1 - B&FB/MSS/NPIC

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27 February 1967

TILTED EYEPIECES FOR THE ZOOM 70 MICROSTEREOSCOPE -- STAFF STUDY

1. PROBLEM:

25X1 The [ ] Zoom 70 Microstereoscope with rhomboids attached is not comfortable for use by a seated operator. In order to adapt this instrument for comfortable use by the photo interpreter, eyepieces must be developed which bend the optical axis closer to the horizontal.

2. FACTS BEARING ON THE PROBLEM:

a. The photo interpreter's task normally requires that he be seated to perform efficiently.

b. The Zoom 70 Microstereoscope, one of the photo interpreter's basic instruments, was designed like a laboratory microscope, i.e.; it was designed to be operated on a laboratory bench by a person standing. Therefore, although the Zoom 70 is one of the most operationally useful optical aids the PI has, it is not really engineered to his physical requirements, resulting in his reduced efficiency.

c. Certain future developments will raise the height of the eyepieces even further making it virtually impossible for the PI to comfortably use this instrument in its present configuration without standing.

3. DISCUSSION:

a. Current Procedure

The photo interpreters currently use the Zoom 70 with discomfort that varies dependent upon the height of the light table with which it is used. The Zoom 70 eyepieces are on an axis of 60° from the horizontal requiring the operator to position his head above the microscope in an uncomfortable position. This discomfort, when endured for several hours each day, results in general fatigue and lower efficiency.

b. Origin of Concept

25X1 A special eyepiece for the Zoom 95 microstereoscope was developed by [ ] for the Army Map Service. This eyepiece bends the optical path by 45° allowing the operator to utilize the Zoom 95 with his head positioned in front rather than on top of the instrument. Inquiries were made as to the possibility of adding this modification to the Zoom 70. [ ] determined that this result could be accomplished on the Zoom 70 but that the modification would be considerably more complex.

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c. Proposed Program

25X1 [ ] proposed to design an eyepiece which would bend the optical path by 45° (from 60° from the horizontal to 15° from the horizontal). This will require a special prism to bend the optical path but not reversing the image. The eyepiece will be developed and production quantities sold at a reasonable price as a separate optional item which can then be mounted on the Zoom 70 microstereoscope.

d. Selection of Contractor

25X1 Since [ ] manufactures the Zoom 70 as well as other optical parts which would be needed for the modification, it was determined by the Technical Development Staff of NPIC that no other source would be capable of producing the required quality item for a reasonable cost within a minimum time period.

e. Program Phasing

A prototype will be built within seventeen weeks of the Contractor's receipt of an order. Delivery of a production order will begin fourteen weeks after approval of the prototype.

f. Coordination

25X1 No other manufacturer could be tasked to make this modification other than [ ] coordination is therefore not applicable beyond the inter-service COPE Committee.

4. CONCLUSIONS:

The proposed program is a straight-forward engineering development of a modification required by an operational division which would adopt an existing operational instrument to better meet the physical requirements of the photo interpreter, easing strain and reducing fatigue. Unless this modification is made, future developments will compound the problem and add further to the photo interpreter's discomfort.

5. RECOMMENDATIONS:

25X1 It is recommended that approval be granted to develop a prototype pair of tilted eyepieces for the Zoom 70 microstereoscope under a Fixed Price Contract with [ ] for a four-month effort.

6. ATTACHMENTS:

TAB A - Catalog Form  
Attachment: Proposal

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(When Filled In)

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R & D CATALOG FORM

27 February 1967

1. PROJECT TITLE/CODE NAME Tilted Eyepieces for the Zoom 70		2. SHORT PROJECT DESCRIPTION The proposed project is the development of an eyepiece for the Zoom 70 microstereoscope which will change the optical path to 15° from the horizontal.	
3. CONTRACTOR NAME		4. LOCATION OF CONTRACTOR	
5. CLASS OF CONTRACTOR Manufacturer		6. TYPE OF CONTRACT F.P.	
7. FUNDS FY 19 66 \$ None FY 19 67 \$ <input type="text"/> FY 19 68 \$ None		8. REQUISITION NO. N.A.	
		9. BUDGET PROJECT NO. NP-V-25-02257	
		10. EFFECTIVE CONTRACT DATE (Begin - end) May 1967 - Sept 1967	
		11. SECURITY CLASS. A.A. - Confidential T. - Unclassified W. - Unclassified	
12. RESPONSIBLE DIRECTORATE/OFFICE/PROJECT OFFICER TELEPHONE EXTENSION NPIC/TDS <input type="text"/>			
13. REQUIREMENT/AUTHORITY The requirement for this development originated in the Photo Analysis Group of NPIC which found that the present Zoom 70 microstereoscopes are not adapted to seated operators.			
14. TYPE OF WORK TO BE DONE Engineering Development			
15. CATEGORIES OF EFFORT			
MAJOR CATEGORY		SUB-CATEGORIES	
Viewing Systems		Microscopes Photo Interpretation	
16. END ITEM OR SERVICES FROM THIS CONTRACT/IMPROVEMENT OVER CURRENT SYSTEM, EQUIPMENT, ETC. This contract will result in a prototype pair of eyepieces for the Zoom 70 which will bend the optical path by 45° (from 60° from the horizontal to 15° from the horizontal) without reversing the image.			
17. SUPPORTING OR RELATED CONTRACTS (Agency & Other)/COORDINATION <input type="text"/> modified the Zoom 95 microstereoscope for the Army Map Service to yield similar results, but the modification on that instrument was a much simpler change. No other contracts were found to be related.			
18. DESCRIPTION OF INTELLIGENCE REQUIREMENT AND DETAILED TECHNICAL DESCRIPTION OF PROJECT (Continue on additional page if required) The photo interpreter is required to spend many hours each week viewing through his Zoom 70 microstereoscope. To do this without inducing excess fatigue, the PI must remain seated. The Zoom 70, like all microscopes, was designed for a standing operator. The proposed modification will allow the operator to remain seated and view through the microscope without undue strain.			
19. APPROVED BY AND DATE			
OFFICE	DEPUTY DIRECTOR	DDCI	
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